Measuring Magnetically Treated Water

Robert M. Haralick
The Sequid SDM-10G Dielectric Probe

1 1/4 inches in Diameter
Faraday Cage

12 Inches High, 5 Inches Diameter
Faraday Cage

5 Inches in Diameter
Ultraperm 80 Mu Metal Alloy Shielding
Ground Rod
Ground Rod
Circuit Breaker Panel
Vector Network Analyzer: Tektronix TTR506A

- Frequency Range
- 300KHz - 6 GHz
Vector Network Analyzer

- The coaxial cable and wires that connect the VNA to the dielectric probe act as a transmission line.
- The load on the transmission line is the Dielectric Probe.
- The Dielectric Probe is put into the water.
- When the wave traveling down the transmission line reaches the end:
  - Part of its energy is absorbed.
  - Part of its energy is reflected.
  - Part of its energy is radiated.
- The vector network analyzer measures the complex reflection coefficient.
- The reflected complex reflection coefficient depends on the water’s permittivity and permeability.
Traveling Waves

Forward Direction:
- \( v(t, x) = \sin(\omega t - kx) \)
- If \( t \) increases, \( x \) must increase to keep \( (\omega t - kx) \) constant

Back Direction:
- \( v(t, x) = \sin(\omega t + kx) \)
- If \( t \) increases, \( x \) must decrease to keep \( (\omega t + kx) \) constant
Reflected Waves

<table>
<thead>
<tr>
<th>Wave</th>
<th>Time Domain</th>
<th>Phasor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forward Wave</td>
<td>$v^+(x, t) = \sin(\omega t - kx)$</td>
<td>$V^+ = 1$</td>
</tr>
<tr>
<td>Reflected Wave</td>
<td>$v^-(x, t) = A\sin(\omega t + kx + \phi)$</td>
<td>$V^- = Ae^{j\phi}$</td>
</tr>
</tbody>
</table>

There is a change in
- Amplitude
- Phase

Reflection Coefficient $\Gamma = \frac{V^-}{V^+} = Ae^{j\phi}$
Suppose that

- The wave generator has an impedance of $Z_0$
- The transmission line has an impedance of $Z_0$
- The load at the end of the transmission line has an impedance of $Z_L$
- When $Z_0 \neq Z_L$ there will be a reflected wave
The VNA sends a sinuosoid with phasor $V^+$

The dielectric probe at the end of the transmission line sends back a sinuosoid phasor $V^- = \Gamma V^+$

$\Gamma$ is the complex reflection coefficient

$\Gamma = \frac{V^-}{V^+}$

If $V^- \neq 0$ the result is a standing wave on the transmission line

$Z_L$ is the load impedance

$Z_0$ is the characteristic transmission line impedance

$$\Gamma = \frac{Z_L - Z_0}{Z_L + Z_0}$$
The Complex Reflection Coefficient

\[ \Gamma = \frac{Z_L - Z_0}{Z_L + Z_0} \]

\[ Z_L = Z_0 \frac{1 + \Gamma}{1 - \Gamma} \]

<table>
<thead>
<tr>
<th>Characteristic Impedance</th>
<th>( Z_L = Z_0 )</th>
<th>( \Gamma = 0 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short</td>
<td>( Z_L = 0 )</td>
<td>( \Gamma = -1 )</td>
</tr>
<tr>
<td>Open</td>
<td>( Z_L = \infty )</td>
<td>( \Gamma = 1 )</td>
</tr>
</tbody>
</table>
Kinds of VNA Measurements

- **Magnitude and Phase**
  \[ \Gamma(\omega) = |\Gamma(\omega)| e^{j\theta(\omega)} \]

- **Real and Imaginary**
  \[ \Gamma(\omega) = \text{Real}(\Gamma(\omega)) + j \text{Imaginary}(\Gamma(\omega)) \]

- **Smith Chart**
Calibrate Vector Network Analyzer

Plastic Test Tube 1.5 inches in Diameter

Pour 40ml of Water To Be Tested Into Test Tube

Insert Dielectric Probe

Put Test Tube With Probe Into Faraday Cage

Measure

- Log Magnitude
- Linear Magnitude
- Real
- Imaginary
- Smith
<table>
<thead>
<tr>
<th></th>
<th>Log magnitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short</td>
<td>log magnitude(short) = 0</td>
</tr>
<tr>
<td>Open</td>
<td>log magnitude(open) = 0</td>
</tr>
<tr>
<td>50 ohm load</td>
<td>log magnitude(50 Ohm) = $-\infty$</td>
</tr>
</tbody>
</table>
Dielectric Probe In Open Air
Dielectric Probe in Test Tube
Water Smacker
Experimental Protocol

- Put Distilled Water in Water Smacker
- Treat At Least 1 Hour With
  - Circumferentially Out Polarized Ring Magnet
  - Circumferentially In Polarized Ring Magnet
  - Radially Polarized Ring Magnet N inside
  - Radially polarized Ring Magnet S inside
  - Axially Polarized Ring Magnet N up
  - Axially Polarized Ring Magnet S up
Circumferential Ring Magnet

Out Means that My Wife Says It Pushes On Her Hand
Circumferential Out Magnetic Treatment
Boyce Untreated Log Magnitude
Boyce Circumferential Out Log Magnitude
Boyce Untreated Imaginary
Boyce Untreated Log Magnitude From Circum. Out
Boyce Circumferential In Log Magnitude
Boyce Circumferential Out In Log Magnitude
Boyce Untreated Real

[Graph showing frequency response with a sine wave pattern.]
Boyce Circumferential In Imaginary

The graph shows a sine wave with frequency on the x-axis and amplitude on the y-axis. The wave oscillates between -1.5 and 1.5 with a peak at 3 GHz. The graph includes markers for start (300 kHz), 3 dB down (10 MHz), and stop (6 GHz).
Radially Polarized Ring Magnet North Inside

North Means North Seeking Pole
Magnetic Radial N Inside Treatment
Boyce Untreated Log Magnitude
Boyce Radial N Inside Log Magnitude
Boyce Radial N Inside Imaginary
Radially Polarized South Inside Ring Magnet

South means south seeking pole
Magnetic Radial South Inside Treatment
Boyce Untreated Log Magnitude
Boyce Untreated Imaginary
Boyce Radial S Inside Imaginary

[Graph showing a curve with frequency on the x-axis and imaginary values on the y-axis.]

**Stimulus** | **Response** | **Channel / Trace** | **Markers / Analysis** | **System** | **Help**
--- | --- | --- | --- | --- | ---

**Phase Units:** Degrees

**Tr1 S11 Imaginary 0.2 0 D**

<table>
<thead>
<tr>
<th>Frequency (GHz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
</tr>
<tr>
<td>Start 300 kHz</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>IFBW 10 kHz</td>
</tr>
<tr>
<td>Stop 6 GHz</td>
</tr>
<tr>
<td>--</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>1</td>
</tr>
</tbody>
</table>

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Axially Polarized South Up Treatment
Boyce Axial South Up Real
Boyce Axial South Up Imaginary
Axially Polarized North Up Treatment
Boyce Untreated Log Magnitude
Boyce Untreated Real

Frequency (GHz)

1  Start 300 kHz
1.1  1FBW 10 kHz
1.6  Stop 6 GHz

1 1.1 1.6

Real S11 0.2

0 D
Boyce Untreated Imaginary
Boyce Axial North Up Imaginary

![Graph showing Boyce Axial North Up Imaginary](image-url)
Observations

- Circumferential Out generated a smoother curve than Circumferential In
- Radial N Inside generated a smooth sloped line
- Radial S Inside had no effect
- Axial South Up moved the dips by 1GHz
- Axial North had no effect
What Might Be Changing

- Water molecules $H_2O$ exist in two forms or isomers: *ortho* and *para*.
- They have different proton spin states.
- Ortho water 75% (Higher Energy State)
  - The proton spins of the hydrogens are parallel.
- Para Water 25% (Lower Energy State)
  - The proton spins of the hydrogens are antiparallel.
Boyce Untreated Log Magnitude 36 Hours
Boyce Untreated Log Magnitude 40 Hours
Boyce Untreated Log Magnitude 42 Hours
Boyce Untreated Log Magnitude 53 Hours
Boyce Untreated Log Magnitude 118 Hours
Boyce Untreated Log Magnitude 150 Hours
Aquacure

The AquaCure (Model EA-H160)
- Generates up to 75 liters per hour (lph)
- Mixed hydrogen and oxygen gases (Brown’s Gas)
Aquacure Untreated Log Magnitude
Aquacure Untreated Imaginary
Aquacure Circumferential Out Imaginary
Aquacure Radial N Inside Log Magnitude
Aquacure Untreated Real
Aquacure Radial N Inside Imaginary

![Graph showing frequency response with Imaginary component]

- Frequency range: 0.2 GHz to 6 GHz
- Trace: S11 Imaginary
- Start: 300 kHz
- 1 dB BW: 10 kHz
- Stop: 6 GHz
- Phase Units: Degrees
Aquacure Radial S Inside Log Magnitude
Aquacure Untreated Imaginary

Graph showing frequency response with frequency on the x-axis and imaginary values on the y-axis. The graph appears to show a periodic function, possibly related to phase units in degrees.
Aquacure Radial N Inside Log Magnitude

[Graph showing a logarithmic plot with frequency (GHz) on the x-axis and magnitude on the y-axis. The graph includes labels for start frequency (300 kHz), 3 dB bandwidth (10 kHz), and stop frequency (6 GHz).]
Aquacure Untreated Real
Aquacure Radial N Inside Real
Aquacure Untreated Linear Magnitude
Aquacure Untreated Real

Frequency (GHz)

1  Start 300 kHz
2  IFBW 10 kHz
3  Stop 6 GHz

Tr1 S11 Real 0.2 ▶ 0 D

Frequency (GHz)
Aquacure Untreated Log Magnitude
Aquacure Axial N Up Log Magnitude
Observations

- Circumferential Out generated no change
- Radial N Inside generated a smoother curve
- Radial S Inside generated no change
- Axial S Up generated no change
- Axial N Up generated a smoother curve
The device works on the principle of amplifying one’s intention, thus accelerating moving into a state of well-being physically and mentally.
528 Hertz Oscillator

- 528 Hz is the *Miracle* note of the original Solfeggio musical scale
- The *Miracle* tone brings remarkable and extraordinary changes
- 528 Hz is the bioenergy of health and longevity

Fourth Harmonic 2,112 Hertz Pulsed

- Quartz Crystal

- Counter-Wound Coils Around the Quartz Crystal
Scalar Healing Machine

O.L.S.A. = Only Love Should Activate
Untreated Linear Magnitude

The graph shows the linear magnitude over frequency. The y-axis represents the magnitude from 0.25 to 1.05, and the x-axis represents frequency from 0.1 GHz to 6 GHz. The graph displays a trend starting at 300 kHz with an initial magnitude of approximately 1.05, decreasing as the frequency increases up to 6 GHz, where the magnitude stabilizes around 0.5.
Conscious Intention Linear Magnitude